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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PETER NESVADBA, LUCIENNE BUGNON and
MARTIN VON BÜREN

Appeal 2010-001894
Application 10/549,526
Technology Center 1600

Decided: June 10, 2010

Before CHARLES F. WARREN, CATHERINE Q. TIMM, and
STEPHEN WALSH, *Administrative Patent Judges*.

WALSH, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) involving claims to a process for the preparation of secondary nitroxide radicals. The Patent Examiner rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

The invention concerns a process for preparing secondary nitroxide radicals by oxidizing the corresponding secondary amines with an organic peracid. The Specification states that “[p]eracids bring about a fast and often quantitative oxidation of the amine.” (Spec. p. 1). The Specification also states that “[o]ne important parameter for the successful oxidation with a peracid is the pH of the reaction mixture.” (*Id.*)

Claims 1-10, which are all the pending claims, are on appeal. Claim 1 is representative and reads as follows:

1. A process for the preparation of secondary nitroxide radicals from their corresponding secondary amines by oxidation with an organic peracid, comprising the steps
 - a) adding to a reaction vessel a secondary amine, optionally together with an organic solvent, and in one batch a base selected from the group consisting of alkali metal bicarbonates, alkaline earth metal bicarbonates, ammonium bicarbonates, alkaline earth metal carbonates ammonium carbonates and mixtures thereof in the form of a solid together with water or as an aqueous slurry;
 - b) dosing a peracid under stirring to the reaction mixture in an amount of 1.0 to 2.5 mol per mol of secondary amine; and
 - c) isolating the organic phase.

The Examiner rejected the claims under 35 U.S.C. § 103(a) as being unpatentable over Gillet¹ in view of Hawley².

1 US Patent No. 6,538,141 B1 issued to Gillet et al., Mar. 25, 2003.

2 The Condensed Chemical Dictionary, pp. 799, 829 (Rev. by Gessner G. Hawley, Van Nostrand Reinhold Company. 1971).

Claims 2-10 have not been argued separately and therefore stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii).

OBVIOUSNESS

The Issues

The Examiner's position is that Gillet's Example 1 disclosed the claimed invention except that Gillet used an aqueous basic solution rather than a base "in the form of a solid with water or as an aqueous slurry," as recited in claim 1. (Ans. 5-6). However, the Examiner found that Gillet taught the "use of the solid or slurry base in the process during the reaction with peracid" by teaching that "efforts will be made to use solutions that are as concentrated as possible." (*Id.* at 6). The Examiner also found that Gillet taught the use of carbonates of alkali metal or the alkaline earth metal elements, including SrCO_3 , which is naturally slightly soluble in water according to Hawley. (*Id.*) According to the Examiner, the SrCO_3 would partially remain in the solid form so that it can be used as the partial solid base in Gillet's process. (*Id.*) The Examiner determined that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate Hawley's sparingly soluble SrCO_3 as the alkaline earth metal carbonate in Gillet's process to control the content of water in the base solution and the pH of the reaction mixture. (*Id.*)

Appellants contend that a significant difference between the prior art process and claim 1 is that "the process of [Gillet] adds a solution of base at intervals during the reaction with peracid and the instant process adds all of the base at once in the form of a solid or as a slurry." (App. Br. 4).

According to Appellants, Gillet “excludes the use of a solid base” and only adds a base as a solution. (*Id.* at 5).

Appellants also contend “that the invention of instant claim 1, and all dependent claims, unexpectedly provides a significantly more easily controlled process for proper pH control of the instant reaction.” (*Id.* at 6).

The issues with respect to this rejection are: (1) whether it would have been obvious to a person of ordinary skill in the art at the time of the invention to add a base in the form of a solid with water or as an aqueous slurry in the prior art process of preparing secondary nitroxide radicals from their corresponding secondary amines by oxidation with an organic peracid; and (2) whether Appellants provided evidence of unexpected results sufficient to overcome a prima facie case of obviousness.

Findings of Fact

1. Gillet disclosed a method for preparing nitroxides consisting of oxidizing secondary amines using an aliphatic peroxide. (Gillet, Abstract).

2. Gillet disclosed that “a sufficient amount of an aqueous basic solution of a carbonate or hydrogen carbonate of an alkali metal or of an alkaline-earth metal so that the pH of the aqueous solution of the two-phase medium is maintained at a value ranging from 4 to 12 and preferably from 5 to 9.” (*Id.* at col. 3, ll. 9-13).

3. Gillet disclosed that “[t]he weight concentration of the aqueous solutions of alkali metal or alkaline-earth metal carbonates or hydrogen carbonates is set by the solubility limit of these species in water. Efforts will be made to use solutions that are as concentrated as possible.” (*Id.* at col. 3, ll. 22-26).

4. Gillet disclosed an example wherein a secondary amine was dissolved in a solvent and stirred in a flask, then water was added to the solution to provide a two-phase system, and then peracetic acid and a basic solution were introduced (with stirring) slowly and simultaneously. (*Id.* at col. 9, ll. 19-32; Ex. 1).

5. Gillet taught that the amount of the basic “solution is adjusted such that the pH of the aqueous phase of the two-phase medium is maintained at between 7.2 and 7.5 in the course of the addition.” (*Id.* at col. 9, ll. 35-38; Ex. 1).

6. Hawley defined “slurry” as “a thin watery suspension.” (Hawley p. 799).

7. Hawley described strontium carbonate (SrCO_3) as “slightly soluble in water.” (*Id.* at p. 829).

Principles of Law

The question of obviousness cannot be approached on the basis that an artisan having ordinary skill would have known only what was read in the references, because such artisan must be presumed to know something about the art apart from what the references disclose. *In re Jacoby*, 309 F.2d 513, 516 (CCPA 1962). The law presumes skill on the part of the artisan rather than the converse. *See In re Sovish*, 769 F.2d 738, 742 (Fed. Cir. 1985).

The existence of unexpected results is a question of fact and the party asserting such existence has the burden of proving the results are, in fact, unexpected. *In re Geisler*, 116 F.3d 1465, 1469-70 (Fed. Cir. 1997). Unexpected results must be established by comparing the results with the

closest prior art. *In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991)(citation omitted).

Analysis

Contrary to Appellants' arguments, we find that the combined prior art suggested adding Gillet's base as an aqueous slurry. Gillet taught that "[t]he weight concentration of the aqueous solutions of alkali metal or alkaline-earth metal carbonates or hydrogen carbonates is set by the solubility limit of these species in water." (FF-3). Further, Gillet expressly stated that "[e]fforts will be made to use solutions that are as concentrated as possible." (FF-3). Hawley described SrCO_3 , one such alkaline earth metal carbonate, as only slightly soluble in water (FF-5) and further defined a slurry as a "thin watery suspension" (FF-6). As the Examiner explained (Ans. 6-7), a skilled artisan who reviewed these references would have understood Gillet's teaching to add a base as a concentrated solution as encompassing the addition of a base as a slurry, especially where the solution comprised a substance that was known to be only slightly soluble in water. *See Jacoby*, 309 F.2d at 516; *Sovish*, 769 F.2d at 742.

Further, we do not find that Appellants have provided sufficient evidence to establish the existence of unexpected results. According to Appellants, the claimed invention "unexpectedly provides a significantly more easily controlled process for proper pH control of the instant reaction." (App. Br. 6). Unexpected results must be established by comparing the results with the closest prior art. *Baxter*, 952 F.2d at 392. As a comparison, Appellants assert that Gillet's process involved "the difficulty of accurately determining pH in a heterogeneous mixture, such as the emulsion of

[Gillet].” (App. Br. 5). However, we do not find that the record evidence supports this position. As the Examiner explained (Ans. 9) Gillet does not describe any difficulty in accurately determining pH. Rather, Gillet described how to maintain the pH of the aqueous solution between 5 and 9. (FF-2). Further, Gillet’s Example 1 described maintaining the pH of the aqueous phase of the two-phase medium between 7.2 and 7.5 without suggesting any difficulty in doing so. (FF-5). Gillet taught a successful process. While the instantly claimed invention may conserve water, Appellants have not established that their process provided a different result than the prior art, much less an unexpected result sufficient to overcome prima facie obviousness. *See Geisler*, 116 F.3d at 1469-70. Consequently, we affirm the obviousness rejection.

CONCLUSIONS OF LAW

It would have been obvious to a person of ordinary skill in the art at the time of the invention to add a base in the form of a solid with water or as an aqueous slurry in the prior art process of preparing secondary nitroxide radicals from their corresponding secondary amines by oxidation with an organic peracid.

Appellants have not provided evidence of unexpected results sufficient to overcome a prima facie case of obviousness.

SUMMARY

We affirm the rejection of claims under 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Gillet in view of Hawley.

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Application 10/549,526

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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